



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,595	09/30/2003	Jack Kaser	POWREP.006A	9937

20995 7590 02/24/2006

Knobbe Martens Olson & Bear LLP  
2040 Main Street  
Fourteenth Floor  
Irvine, CA 92614

EXAMINER

MCKINNON, TERRELL L

ART UNIT PAPER NUMBER

3753

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/675,595	Applicant(s) KASER ET AL.	
	Examiner Terrell L. Mckinnon	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/4/2004</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozacka et al. (U.S. 5,881,799) in view of Hagar et al. (U.S. 4,673,026).

Kozacka discloses a perimeter sealing element for regenerative heat exchanger comprising:

- a sealing section that is positioned to at least partially span the gap between the heat exchanging body and the housing, wherein the seating section includes a deformable biasing section that engages with at least a portion of both the housing and the heat exchanging body in a manner so as to resiliently deform in a second direction relative to the first direction during rotation;
- the sealing section comprises a first resilient member with interlocking features and a second resilient member having interlocking features coupled to the interlocking features of the first resilient member (see Figs.);

Art Unit: 3753

- the coupled interlocking features define the deformable biasing section of the sealing section;
- the heat exchanging body comprises a rotor;
- the sealing section includes a mounting section that mounts to the rotor and a contact section that contacts the housing with the deformable biasing section interposed therebetween; and
- the mounting section and the contact section of the seal member are urged towards each other when the contact section contacts the housing.

Kozacka's invention discloses all of the claimed limitations from above except for a reinforcing member interposed between the housing and the heat exchanging body so as to cover at least a portion of the sealing section, wherein the reinforcing member is positioned with respect to the sealing section so as to reinforce the sealing section when deformed in the second direction to thereby inhibit damage to the sealing section as a result of the deformation during rotation; the reinforcing member is interposed between the housing and the heat exchanging body so as to cover at least a portion of the interlocking features of at least one of the resilient members; the reinforcing member is mounted to the rotor so that the reinforcing member inhibits movement of the contact section and the mounting section towards each other; the reinforcing member comprises a biasing section that provides resilient biasing against movement of the contact section of the seal member towards the mounting section of the seal member;

Art Unit: 3753

the reinforcing member comprises a bent section that contours the structural shape of at least one of the first and second resilient members; reinforcement member contacts the first and second resilient members so that the reinforcing member inhibits movement of at least a portion of the first and second resilient members in the direction substantially perpendicular to the first direction; the reinforcing member further provides a biasing force in a direction relative to the movement of the first and second resilient members; the reinforcing member comprises a mounting section that mounts to the heat exchanging body, a contact section that contacts the seal member, and a biasing section; the biasing section comprises a bent section that is angularly displaced from a position substantially perpendicular to the housing; the contact section comprises an elongate section that contacts at least one of the first and second resilient members so as to oppose movement of the first and second resilient members in the direction substantially perpendicular to the first direction; the contact section deflects in the direction substantially perpendicular to the first direction during rotation so as to engage the sealing section and distributes the deflection force along the elongate section; and the reinforcing member is positioned adjacent the sealing section so as to define a deflection gap therebetween so that the sealing section deforms the width of the deflection gap prior to engaging the reinforcing during rotation.

3. However, Hager teaches a sealing arrangement for regenerators comprising a reinforcing member interposed between the housing and the heat exchanging body so as to cover at least a portion of the sealing section, wherein the reinforcing member is positioned with respect to the sealing section so as to reinforce the sealing section

Art Unit: 3753

when deformed in the second direction to thereby inhibit damage to the sealing section as a result of the deformation during rotation; the reinforcing member is interposed between the housing and the heat exchanging body so as to cover at least a portion of the interlocking features of at least one of the resilient members; the reinforcing member is mounted to the rotor so that the reinforcing member inhibits movement of the contact section and the mounting section towards each other; the reinforcing member comprises a biasing section that provides resilient biasing against movement of the contact section of the seal member towards the mounting section of the seal member; the reinforcing member comprises a bent section that contours the structural shape of at least one of the first and second resilient members; reinforcement member contacts the first and second resilient members so that the reinforcing member inhibits movement of at least a portion of the first and second resilient members in the direction substantially perpendicular to the first direction; the reinforcing member further provides a biasing force in a direction relative to the movement of the first and second resilient members; the reinforcing member comprises a mounting section that mounts to the heat exchanging body, a contact section that contacts the seal member, and a biasing section; the biasing section comprises a bent section that is angularly displaced from a position substantially perpendicular to the housing; the contact section comprises an elongate section that contacts at least one of the first and second resilient members so as to oppose movement of the first and second resilient members in the direction substantially perpendicular to the first direction; the contact section deflects in the direction substantially perpendicular to the first direction during rotation so as to engage

Art Unit: 3753

the sealing section and distributes the deflection force along the elongate section; and the reinforcing member is positioned adjacent the sealing section so as to define a deflection gap therebetween so that the sealing section deforms the width of the deflection gap prior to engaging the reinforcing during rotation.

Given the teachings of Hagar, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the sealing arrangement of Kozacka with a reinforcing member interposed between the housing and the heat exchanging body so as to cover at least a portion of the sealing section, wherein the reinforcing member is positioned with respect to the sealing section so as to reinforce the sealing section when deformed in the second direction to thereby inhibit damage to the sealing section as a result of the deformation during rotation; the reinforcing member is interposed between the housing and the heat exchanging body so as to cover at least a portion of the interlocking features of at least one of the resilient members; the reinforcing member is mounted to the rotor so that the reinforcing member inhibits movement of the contact section and the mounting section towards each other; the reinforcing member comprises a biasing section that provides resilient biasing against movement of the contact section of the seal member towards the mounting section of the seal member; the reinforcing member comprises a bent section that contours the structural shape of at least one of the first and second resilient members; reinforcement member contacts the first and second resilient members so that the reinforcing member inhibits movement of at least a portion of the first and second resilient members in the direction substantially perpendicular to the first direction; the reinforcing member further provides a biasing

Art Unit: 3753

force in a direction relative to the movement of the first and second resilient members; the reinforcing member comprises a mounting section that mounts to the heat exchanging body, a contact section that contacts the seal member, and a biasing section; the biasing section comprises a bent section that is angularly displaced from a position substantially perpendicular to the housing; the contact section comprises an elongate section that contacts at least one of the first and second resilient members so as to oppose movement of the first and second resilient members in the direction substantially perpendicular to the first direction; the contact section deflects in the direction substantially perpendicular to the first direction during rotation so as to engage the sealing section and distributes the deflection force along the elongate section; and the reinforcing member is positioned adjacent the sealing section so as to define a deflection gap therebetween so that the sealing section deforms the width of the deflection gap prior to engaging the reinforcing during rotation.

Doing so would provide a means of reinforcing and enhancing the sealing arrangement so the regenerator will operate more efficiently.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references cited on the USPTO 892 discloses related limitations of the applicant's claimed and disclosed invention.



Art Unit: 3753

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell L. Mckinnon whose telephone number is 571-272-4797. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Terrell L Mckinnon  
Primary Examiner  
Art Unit 3753  
February 21, 2006